



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,727	04/13/2004	Raulf M. Polichar	000479.00116	2863
22907	7590	08/28/2006	EXAMINER	
BANNER & WITCOFF 1001 G STREET N W SUITE 1100 WASHINGTON, DC 20001			GAGLIARDI, ALBERT J	
			ART UNIT	PAPER NUMBER
			2884	

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/822,727	Applicant(s) POLICHAR ET AL.	
	Examiner Albert J. Gagliardi	Art Unit 2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1020 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 10-20 is/are rejected.  
 7) ☒ Claim(s) 13 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 01 April 1304 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Comment on Submissions*

1. This Office Action is responsive to the Amendment and Remarks filed on 17 August 2006.

### *Claim Objections*

2. Claim 13 is objected to because of the following informalities: Regarding claim 13, the reference to “each of the high density polyethylene layers” is improper since the layer is merely referred to as an “acrylic” layer in antecedent claim 10. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Craig *et al.* (US 6,580,079) in view of Odom *et al.* (US 6,495, 837 B2) and Grodzins (US 2005/0023479 A1).

Regarding claim 10, *Craig* discloses (Fig. 4) a broad spectrum neutron detector comprising a thermal neutron sensitive scintillator film (sheet) (400; col. 6, lines 4-5) interleaved with a hydrogenous thermalizing media (410; col. 6, lines 9-13).

Regarding the hydrogenous media functioning as a light guide, *Odom* discloses a neutron detector including a scintillator film (302) interleaved with a hydrogenous light guide (304)

Art Unit: 2884

formed of acrylic (col. 9, lines 28-31). *Odom* teaches that the use of a transparent hydrogenous material allows for the material to also be used as a light guide thereby increasing detector efficiency (col. 7, lines 41-47). As such, it would have been obvious to a person of ordinary skill in the art to utilize the thermalizing media as a light guide to improve detection efficiency.

Regarding the material comprising a  $^6\text{Li-ZnS}$ , *Grodzins* further discloses (Figs. 3, 4 and 7) a thermal neutron sensitive scintillator comprising a material such as  $^6\text{Li-ZnS}$  (specifically  $^6\text{LiF-ZnS}$ ) are known in the art for the functionally equivalent purpose of detecting thermal neutrons [0030]. Therefore, absent some degree of criticality, a specific choice of a  $^6\text{Li-ZnS}$  material is viewed as an obvious design choice in view of the known use of such material for the purpose of detecting thermal neutrons.

Regarding claims 11-13, absent some degree of criticality, the particular number of layers and the thicknesses of the thermal neutron sensitive scintillator film and the thermalizing media layer are considered a matter of routine design choice depending on the needs of the application including such factors relating to detector geometry and the desired to optimize the thickness of the films to achieve high detection efficiency.

Regarding claim 14, *Odom* further discloses a photosensor (col. 5, line 67).

Regarding claims 16-17, the configuration of radiation detectors as portal detectors or handheld detectors is well known and, absent some degree of criticality, the particular configuration and use of the detector would have been an obvious design choice depending on the needs of the application.

Regarding claims 18-20, the apparatus as recited according to claims 18-20 is suggested by the apparatus suggested by *Craig*, *Odom* and *Grodzins* as applied above, and is rejected

Art Unit: 2884

accordingly. The examiner notes that while *Craig, Odom* and *Grodzins* does not specifically recite the use of a reflecting surface enveloping the interleaved layers and being tapered for guiding light to the photosensor, those skilled in the art appreciate that the use of reflecting materials and tapered light concentrators are well known for use in conjunction with scintillators and light guides so as to allow for efficient collection of light with minimal loss, and absent some degree of criticality, the use of such would have been a matter of routine design choice within the skill of a person of ordinary skill in the art.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Craig, Odom* and *Grodzins* as applied above, and further in view of Koechner (US 4,942,302).

Regarding claim 15, although *Craig, Odom* and *Grodzins* do not disclose a wavelength shifter, those skilled in the art appreciate that it is well known in the art to employ wavelength shifters in conjunction with scintillators to allow for better matching of the output of the scintillator to the photosensor (see for example *Koechner* at col. 4, lines 18-21).

### ***Response to Arguments***

6. Applicant's arguments filed 17 August 2006 have been fully considered but they are not persuasive.

7. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

8. In response to applicant's arguments against the *Grodzins* reference, the examiner notes that the only purpose for citing the *Grodzins* reference is for the use of a <sup>6</sup>Li-ZnS (specifically

Art Unit: 2884

<sup>6</sup>LiF-ZnS) detecting film. Applicant acknowledges that such material is also disclosed in the provisional application. The examiner also notes that the disclosure of the specific <sup>6</sup>LiF-ZnS is considered to suggest generically recited <sup>6</sup>Li-ZnS.

9. Any of applicant's remaining arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

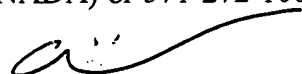
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2884

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (571) 272-2436. The examiner can normally be reached on Monday thru Friday from 10 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Albert J. Gagliardi  
Primary Examiner  
Art Unit 2884

AJG